

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Chung-Hsing Chang et al.

Serial No.: Not Known Yet


Group Art Unit: Not Known Yet

Filed: 12/8/2003

Examiner: Not Known Yet

For: **CLEAR FIELD ANNULAR TYPE PHASE SHIFTING MASK**

I hereby certify that this correspondence is being deposited with the United States Postal Service on the date shown below with sufficient postage as "Express Mail Post Office to Addressee" Mailing Label Number EV 175959916 US to Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

12/8/2003  
Date  
  
Chris Lambriodes

**INFORMATION DISCLOSURE STATEMENT TRANSMITTAL LETTER**

Dear Sir:

Enclosed herewith is an Information Disclosure Statement pursuant to 37 CFR.  
§ 1.56 in connection with the above-identified application, which statement is being filed:

- ☒ [ X ] Together with the present application.
- ☐ [ ] Before the first Office Action on the merits or three (3) months from the filing date of this application, whichever occurs last. **[37 CFR § 1.97(b)]**
- ☐ [ ] After the first Office Action on the merits, but before a Final Office Action under §1.113 or Notice of Allowance under §1.311, whichever occurs first. **[37 CFR § 1.97(c)]**
- ☐ [ ] After a Final Office Action under §1.113 or Notice of Allowance under §1.311, but prior to or with payment of the Issue Fee. **[37 CFR § 1.97(d)]**

Consistent with Applicant's obligations pursuant to 37 CFR §§1.97 and 1.98, the following requirements have been met:

- ☒ [x] No separate requirements are needed.
- ☒ [x] No additional fee is required.

☐ **Fee Under 37 CFR § 1.97(c)**

The fee of \$180.00 for submission of an IDS under § 1.97(c) as set forth in § 1.17(p) accompanies this statement.

☐ **Fee Under 37 CFR § 1.97(d)**

The fee of \$180.00 for submission of an information disclosure statement under § 1.97(d) set forth in § 1.17(p) accompanies this statement.

☐ **Certification Under 37 CFR § 1.97(e)**

- ☐ Each item of information contained in this statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement; or
- ☐ No item of information contained in this statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the statement after making reasonable inquiry, no item of information contained in this statement was known to any individual designated in §1.56(c) more than three months prior to the filing of this statement.

**Provision of Copies of References**

☒ A copy of each of the non-U.S. patent references listed on the attached Form PTO-1449 is enclosed herewith and forms a part hereof.

☐ Partial Translations of References are enclosed herewith and form a part hereof.

☐ A copy of the European Search Report from a corresponding or related EPO application is enclosed herewith.

☐ A copy of the International Search Report from a corresponding or related PCT application is enclosed herewith.

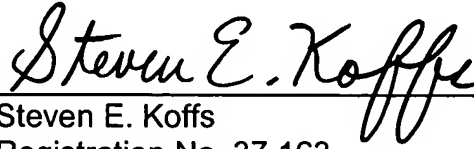
**Identification of Prior Application(s) In Which Listed Information Was Already Cited And For Which No Copies Ar Submitted Or Need Be Submitted**

[ ] This application relies, under 35 U.S.C. § 120, on the earlier filing date of prior U.S. Application No(s). . The following references were submitted to, and/or cited by, the Office in the prior application(s) and therefore are not required to be provided in this application:

[x] The Commissioner is hereby authorized to charge any fees associated with this communication or credit any overpayment to Deposit Account No. 04-1679. A duplicate copy of this transmittal is attached.

Respectfully submitted,

DATE: 12/8/03

  
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Registration No. 37,163  
Attorney for Applicant(s)

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Substitute for form 1449/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**(Use as many sheets as necessary)**

**Complete if Known**

Application Number	Not Yet Assigned
Filing Date	12/08/2003
First Named Inventor	Chung-Hsing Chang
Art Unit	Not Yet Assigned
Examiner Name	Not Yet Assigned
Attorney Docket Number	N1085-00018

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## U. S. PATENT DOCUMENTS

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## FOREIGN PATENT DOCUMENTS

[illegible]

Examiner Signature		Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.<sup>1</sup> Applicant's unique citation designation number (optional).<sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04.<sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).<sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.<sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.<sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Substitute for form 1449/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>		<b>Complete if Known</b>	
		Application Number	Not Yet Assigned
		Filing Date	12/08/2003
		First Named Inventor	Chung-Hsing Chang
		Art Unit	Not Yet Assigned
		Examiner Name	Not Yet Assigned
Sheet 2	of 3	Attorney Docket Number	N1085-00018

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	A	JOHN S. PETERSEN ET AL., "Development Of A Sub-100nm Integrated Imaging System Using Chromeless Phase-Shifting Imaging With Very High NA KrF Exposure And Off-Axis Illumination," 14 pages	
	B	FUNG CHEN ET AL., "Binary Halftone Chromeless PSM Technology For Lambda/4 Optical Lithography," Optical Microlithography XIV, Proceedings of SPIE Vol. 4346 (2001) Pages 515 - 533	
	C	KATHERINE DERBYSHIRE, "Next-Generation Lithography: Beyond 100 NM, In The NGL Race, Only Extreme Ultraviolet And Projection Beam Technologies Are Still Contenders" at	
		<a href="http://www.semi.org/web/wmagazine.nsf/4f55b97743c2d02e882565bf006c245...">http://www.semi.org/web/wmagazine.nsf/4f55b97743c2d02e882565bf006c245...</a> 10/11/2003, 8 pages	
	D	DOUGLAS VAN DEN BROEKE, "Transferring Phase-Shifting Mask Technology Into Mainstream Manufacturing," at <a href="http://www.semiconductorfabtech.com/features/">http://www.semiconductorfabtech.com/features/</a>	
		lithography/articles/body5.225... 10/11/2002, 8 pages	
	E	IBM, LARS W. LIEBMANN, "Layout Impact Of Resolution Enhancement Techniques: Impediment Or Opportunity?", Pages 110-117	
	F	LONG QUE ET AL., "Chromeless Phase-Shift Technology: The Physical Mechanism Of The Dark Area Produced by Phase-Compensation And Its Application," SPIE Vol. 1927	
		Optical/Laser Microlithography VI (1993), Pages 709 - 714.	

Examiner Signature	Date Considered
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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

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(Use as many sheets as necessary)

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	<b>First Named Inventor</b>		Chung-Hsing Chang
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	<b>Attorney Docket Number</b>		N1085-00018

Sheet

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of

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	G	KENNY K. H. TOH ET AL., "Chromeless Phase-Shifted Masks: A New Approach To Phase-Shifting Masks," SPIE Vol. 1496 10th Annual Symposium On Microlithography	
		(1990), Pages 27 - 53.	

<b>Examiner Signature</b>		<b>Date Considered</b>	
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